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AMENDMENT TO CLAIMS

Claim 1 (Previously presented) An isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:4 to SEQ ID NO:6, SEQ ID NO:8 to SEQ ID NO:22, and a fragment of any of the previous amino acid sequences wherein said fragment has the biological activity of the polypeptide encoded by SEQ ID NO:2.

Claim 2-17 (Cancelled)

Claim 18 (Currently amended) A method of treating a disease associated with *Brachyspira* species, including but not limited to *B. hyodysenteriae*, *B. intermedia*, *B. alvinipulli*, *B. aalborgi* and *B. pilosicoli* in an animal comprising administering to the animal an effective amount of a composition selected from the group consisting of:

(i) a composition comprising a polynucleotide sequence according to claim 2 in a form adapted to result in the expression of the polypeptide encoded by the polynucleotide;

(ii) (i) a polypeptide according to claim 1; or

(iii) the composition of (i) or (ii) the polypeptide of (ii) (i) together with an adjuvant.

Claim 19 (Cancelled)

Claim 20 (Previously presented) The method of treating a disease according to claim 18 wherein the disease is intestinal spirochaetosis.

Claims 21-22 (Cancelled)

Claim 23 (Previously presented) The method according to claim 18 wherein the animal is selected from the group consisting of: pigs, chickens, dogs, horses, cattle, sheep, fish, and humans.

Claim 24 (Currently amended) A composition comprising a carrier and an immunogen wherein said immunogen is selected from the group consisting of a polypeptide according to claim 1, a polynucleotide according to claim 2, and an antibody according to claim 8.

Claim 25-26 (Cancelled)

Claim 27 (Previously presented) An isolated polypeptide comprising an amino acid sequence that is at least 90% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4 to SEQ ID NO: 6, and SEQ ID NO: 8 to SEQ ID NO: 22 wherein the polypeptide can, when injected into an animal, cause the animal to generate an immune response to *Brachyspira* species.

Claim 28 (Previously presented) The isolated polypeptide of Claim 27 wherein said amino acid sequence is at least 80% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4 to SEQ ID NO: 6, and SEQ ID NO: 8 to SEQ ID NO: 22, wherein the polypeptide can, when injected into an animal, cause the animal to generate an immune response to *Brachyspira* species.

Claim 29 (Previously presented) The isolated polypeptide of Claim 27 wherein said amino acid sequence is at least 70% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4 to SEQ ID NO: 6, and SEQ ID NO: 8 to SEQ ID NO: 22, wherein the polypeptide can, when injected into an animal, cause the animal to generate an immune response to *Brachyspira* species.

Claim 30 (Previously presented) The isolated polypeptide of Claim 27 wherein said amino acid sequence is at least 60% homologous to an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4 to SEQ ID NO: 6, and SEQ ID NO: 8 to SEQ ID NO: 22, wherein the polypeptide can, when injected into an animal, cause the animal to generate an immune response to *Brachyspira* species.